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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,388	03/27/2001	Frank Sauer	2001P05445US	1674

7590 03/26/2003

Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,388

Applicant(s)

SAUER ET AL.

Examiner

Motilewa A. Good-Johnson

Art Unit

2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to the following communications: Application, filed 03/27/2001.
2. Claims 1-24 are pending in this application. Claims 1 and 13 are independent claims. No claims have yet been amended.
3. The present title of this application is "Augmented Reality Guided Instrument Positioning with Modulated Guiding Graphics" (as originally filed).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga, U.S. Patent Number 6,346,940 B1, "Virtualized Endoscope System", class 345/427, 02/2002, filed 02/1998.

As per independent claim 1, a method for augmented reality guided instrument positioning, comprising the steps of: determining a graphics guide for positioning an instrument; Fukunaga discloses guiding marker to indicate direction of the instrument, virtual endoscope, col. 8, lines 1-10; and rendering the graphics guide such that an appearance of at least one portion of the graphics guide is modulated with respect to at

least one of space and time. Fukunaga discloses preparing a guiding marker and the image control unit processing the guiding marker for display at a desired position on the image, col. 19, lines 1-60. However, it is noted that Fukunaga fails to disclose explicitly modulating the graphics guide appearance. It would have been obvious to one of ordinary skill in the art at the time of the invention that as the virtual endoscope is moved about the image the graphics guide would be changed to represent the portion of the image the endoscope is occupying.

With respect to dependent claim 2, rendering step comprises the step of varying a transparency of the at least one portion of the graphics guide with respect to other portions of the graphics guide to provide a substantially unobstructed view through the at least one portion of the graphics guide . . . Fukunaga discloses semitransparent image so that portions of the image can be viewed unobstructed, col. 11, lines 44-67. However, it is noted that Fukunaga fails to disclose a transparent guide marker. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also markers to avoid obstructing portions of the image, which is what Fukunaga wishes to accomplish.

With respect to dependent claim 3, varying a transparency of the at least one portion of the graphics guide during pre-defined time intervals to provide a substantially unobstructed view through the at least one portion of the graphics guide . . . Fukunaga discloses an adjustable degree of transparency, col. 7, lines 59-64. However, it is noted that Fukunaga fails to disclose a transparent guide marker. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-

transparent images, but also markers to avoid obstructing portions of the image, which is what Fukunaga wishes to accomplish.

With respect to dependent claim 4, varying a transparency of each of a plurality of portions of the graphics guide during at least one predefined time interval to provide a substantially unobstructed view through each of the plurality of portion to at least a portion of the instrument . . . Fukunaga discloses an adjustable degree of transparency, col. 7, lines 59-64. However, it is noted that Fukunaga fails to disclose a transparent guide marker. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also markers to avoid obstructing portions of the image.

With respect to dependent claim 5, plurality of portions are consecutive.
Fukunaga discloses guiding markers as a path to take, col. 8, lines 5-10.

With respect to dependent claim 6, varying a transparency of the at least one portion of the graphics guide such that the at least one portion repeatedly switches between transparent and less transparent. Fukunaga discloses thinning pixels based on a preset degree of semi transparency adjusted by the operator, col. 11, lines 44-57. However, it is noted that Fukunaga fails to disclose a transparent guide marker. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also guide markers to avoid obstructing portions of the image.

With respect to dependent claim 7, constructing the graphics guide as a line, and rendering step comprises the step of modulating a transparency of the line with respect

to time so that the line repeatedly fades in and out of view to provide a substantially unobstructed view . . . Fukunaga discloses the guiding marker used to indicate the direction could be a path, arrows, etc, col. 8, lines 1-10. However, it is noted that Fukunaga fails to disclose a transparent line. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also markers to avoid obstructing portions of the image.

With respect to dependent claim 8, constructing the graphics guide as a line, and rendering step comprises the step of modulating a transparency of portions of the line so that at least a portion of the instrument is substantially unobstructed . . . Fukunaga discloses the guiding marker used to indicate the direction could be a path, arrows, etc, col. 8, lines 1-10. However, it is noted that Fukunaga fails to disclose a transparent line. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also markers to avoid obstructing portions of the image.

With respect to dependent claim 9, rendering step comprises the step of modulating a transparency of portions of the line with respect to time and space so that at least a portion of the instrument is substantially unobstructed . . . during pre-defined time intervals. Fukunaga discloses semitransparent image so that portions of the image can be viewed unobstructed, col. 11, lines 44-67. However, it is noted that Fukunaga fails to disclose a transparent line. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also markers to avoid obstructing portions of the image.

With respect to dependent claim 10, constructing the graphics guide as a cylinder . . . rendering step comprises the step of modulating a transparency of the cylinder with respect to time so that the cylinder repeatedly fades in and out of view . . . Fukunaga discloses typical examples of guiding markers. However, it is noted that Fukunaga fails to disclose a transparent cylinder. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also graphic markers to avoid obstructing portions of the image.

With respect to dependent claim 11, modulating a transparency of portions of the cylinder so that at least a portion of the instrument is substantially unobstructed . . . Fukunaga discloses semitransparent image sot that portions of the image can be viewed unobstructed, col. 11, lines 44. However, it is noted that Fukunaga fails to disclose a transparent cylinder. It would have been obvious to one of ordinary skill in the art at the time of the invention to include not only semi-transparent images, but also graphic guide markers to avoid obstructing portions of the image.

With respect to dependent claim 12, rendering step comprises the step of modulating a transparency of portions of the cylinder with respect to time and space so that at least a portion of the instrument is substantially unobstructed . . . during pre-defined time intervals. Fukunaga discloses a operation path history that registers the path position and view direction each time the instrument changes to reproduce the image on the display unit, col. 8, lines 32-47. However, it is noted that Fukunaga fails to disclose a transparent line. It would have been obvious to one of ordinary skill in the art

at the time of the invention to include not only semi-transparent images, but graphic also guide markers to avoid obstructing portions of the image.

As per independent claim 13 and dependent claims 14-24, they are rejected based upon similar rational as above independent claim 1 and dependent claims 2-12 respectively.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6,480,813 B1	Bloomquist et al.	703/1	11/2002	02/1999
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Method and apparatus for defining a precision drawing in a drawing program.

6,113,395	Hon	434/262	09/2000	08/1998
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Selectable instruments with homing devices for haptic virtual reality medical simulation.

6,083,162	Vining	600/407	07/2000	10/1995
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Method and system for producing interactive, three-dimensional renderings of selected body organs having hollow lumens to enable simulated movement through the lumen.

5,638,819	Manwaring et al.	600/424	06/1997	
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Method and apparatus for guiding an instrument to a target.

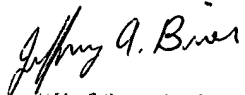
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Motilewa A. Good-Johnson
Examiner
Art Unit 2672

mgj
March 19, 2003


JEFFERY D. BRIER
PRIMARY EXAMINER